



Document name

Standard Production Specification

58185030000

Production Specification

Abontouch Production Specification

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TPM-58185030000
Touch Panel Module
Production Specification

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1 INTRODUCTION [引言]

1.1 Overview[大綱]

This document is intended as a Projected Capacitive Multi-Touch Panel Module (TPM) Production specification, which describes the functions, dimensions and test methods of production for this part number.

本文件是投射電容式多點觸控面板(簡稱:TPM)的產品規格書，其中明定功能，尺寸及測試方法等資訊。

1.2 Document Organization[文件大綱]

- **Chapter 1** – Introduction - Provides an overview of the document. This section of the introduction summarizes the contents of the remaining chapters and appendices.
- **第一章 引言**--為本文件的導讀，摘要各章節內容和附錄等資訊。
- **Chapter 2** –Specifications - Describes the all specification of this production.
- **第二章 規格**—本產品所有的相關技術規格資料。

1.3 Terminology[術語]

- **Function specification:** describes functional parameters and support of the production.
- **功能規範:**定義產品所支援的各項參數和功能特性。
- **Dimension specification:** describes Dimension of the production.
- **尺寸規範:**定義產品的各項尺寸條件和公差容許範圍。
- **Quality specification:** describes test methods for quality of the production.
- **品質規範:**定義可靠度和特性測試的手法和條件。
- **Appearance Inspection:** describes standard of appearance inspection method and condition of touch Panel.
- **外觀檢測規範:**定義外觀檢測觸控面板的手法和檢測標準。

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- Packaging Information: describes method of packaging and shipping number definition.
- 包裝資訊規範:定義包裝的方式和出貨號碼的定義。

1.4 Target Group/Purpose[用途]

This specification is designed for customer to know all dimension, functions and quality of our production

此規格書是設計給客戶了解產品的尺寸、功能和品質保證。

1.5 Document References [參照文件]

- | | |
|------------------------|-------------------------------------|
| [1] PSFU_DOC0000000003 | MC162A07 Function specification |
| [2] 58185030000 | 58185030000 Dimension specification |
| [3] PSTS_DOC0000000001 | Self Quality test specification |
| [4] PSTS_DOC0000000002 | Appearance Inspection specification |
| [5] PSTS_DOC0000000003 | Packaging Information specification |

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2 SPECIFICATIONS[規格]

2.1 Scope [適用範圍]

This specification is applied to Projected Capacitive Multi-Touch Panel Module (TPM) made by Abon Touchsystem Inc.

規格書是用於嵩達光電生產之投射電容式多點觸控面板(簡稱:TPM)。

2.2 Documents list[文件參照列表]

TPM Name[TPM 品號]	Parts [件號]	Documents[文件編號]	Version[版本]
58185030000	AB-5818503062118210850 TP sensor panel [觸控面板]	58185030000	A
		PSTS_ DOC0000000001	1.1
		PSTS_ DOC0000000002	1.0
		PSTS_ DOC0000000003	1.0
	4001850330 Controller board [控制器正式品號]	MC162A07 COB Hardware [控制器硬體]	PSFU_ DOC0000000003
	MD185B00 COB Firmware [控制器韌體]	Firmware	0000

Table 2.2-1 Document list

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2.3 Features[特性]

Item [項目]		Specifications[規格描述]
1	Type [產品類型]	Projected Capacitive Multi-Touch Panel [投射電容式多點觸控面板(簡稱:TPM)]
2	Input Mode [觸碰模式]	<ul style="list-style-type: none"> ● Multi Finger [指觸] ● Stylus [筆觸]
3	The closest distance between 2 points [最小指間距]	18mm
4	Touch Point [支援觸碰點數]	MAX: 4 point [最多支援:4 點]
5	Output Mode [輸出介面]	USB

Table 2.3-1 Features list

2.4 Dimensions [尺寸]

2.4.1 Touch Panel[面板]

Reference to 58185030000 Touch Panel Dimension specification

參照 58185030000 面板圖面規範所示。

2.4.2 Controller Board[控制板區]

Reference to PSFU_DOC0000000003-M162A07 Function specification

參照 PSFU_DOC0000000003-M162A07 功能規範所示。

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2.5 Environmental Characteristics [環境特性]

Item [項目]		Specifications [規格描述]	
		Temperature [溫度]	Humidity (Non Condensing) [溼度(未凝結)]
1	Operation [操作模式]	-30°C ~ +70°C	20%~90% RH at max 50°C
2	Storage [存儲模式]	-40°C ~ +80°C	20%~90% RH at max 50°C
Note: All terms under 1 atmosphere. [註:於正常的 1 大氣壓下]			

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2.6 Optical Characteristics[光學特性]

Item [項目]		Specifications [規格描述]
1	Transparency [透光度]	$\geq 86\%$ (measured by BYK-Gardner at 550nm, and the test method accorded to ASTM D1003)
2	Haze [霧化度]	$\leq 2\%$ (the test method accorded to ASTM D1003)

2.7 Mechanical Characteristics[機構特性]

Item [項目]		Specification [規格描述]
1	Panel [面版區]	Hardness [表面硬度] $\geq 7H$ pencil, pressure 1N/45° [鉛筆 $\geq 7H$, 壓力 1N/45°(JIS K-5400)] (the test method accorded to JIS K-5400)
2	FPC [連結線]	Peeling [剝離] >600g by 90 degrees ,speed 25mm/min (Figure 2.7-1) [>600g , 90°, 拉伸速度 25 mm/min] (the test method accorded to ASTM D903/ASTM D3807)
3		Bending [繞折] Bending degree[繞折角度]: 180° Bending radius[繞折半徑]: R1 mm

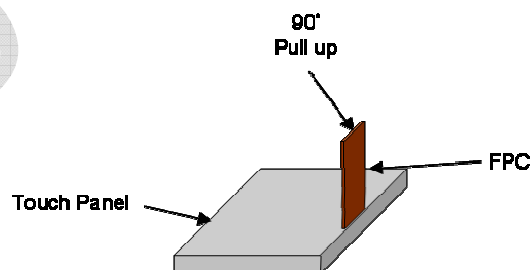


Figure 2.7-1 Peeling method

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3 ATTENTION [注意事項]

Item [項目]	EXPLANATION [說明]
<p>Storage [儲存]</p>	<ol style="list-style-type: none"> <li data-bbox="411 808 1524 996">1. A touch panel should be stored under the environment temperature and humidity controlled as suggested. [觸控面板必須被儲存放置在一如規格書所建議的有從事環境溫度與濕度控制的區域內] <li data-bbox="411 1008 1524 1086">2. Do not store a touch panel in direct sunlight. [不可將觸控面板直接曝曬在陽光下]
<p>Cleaning [清潔]</p>	<ol style="list-style-type: none"> <li data-bbox="411 1104 1524 1243">1. Prevent using any kind of the chemical solvent, acidic or alkali solution when cleaning. [若要清潔觸控面板，請盡量避免使用諸如強酸或強鹼之類的任何化學溶劑] <li data-bbox="411 1254 1524 1330">2. Neutral detergent or isopropyl alcohol was suggested if the panel is cleaned. [若要清潔觸控面板，我們建議使用中性的清潔劑或異丙醇和酒精等等]
<p>Assembly [組裝]</p>	<ol style="list-style-type: none"> <li data-bbox="411 1348 1524 1534">1. Do not apply rough force such as bending or twisting to the touch panel during assembly. [觸控面板在組裝時，請不要過度施力導致玻璃表面發生諸如變形或扭曲等形變現象的發生] <li data-bbox="411 1545 1524 1624">2. Excessive force or strain to the panel or FPC/COF is prohibited. [對於 FPC 或 COF 的作業時，過度的拉力或繃緊作業是必須被禁止與避免的] <li data-bbox="411 1635 1524 1825">3. Past VHB tape or sponge with adhesive on the gap between a touch panel and a LCD module to segregate water and dust contamination. [請在觸控面板與 TFT-LCD 面板的中間間隙處選用適合的雙面膠帶或是具有黏性的泡棉加以阻絕外在水份與汙染源的干擾] <li data-bbox="411 1836 1524 1917">4. Suggest that the touch panel and screen spacing 0.5mm. [建議觸控面板與螢幕之間留有0.5mm的距離]

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Item [項目]	EXPLANATION [說明]
<p>Operation [操作]</p>	<ol style="list-style-type: none"> 1. The panel must be operated in a steady environment, the abrupt change of the environment conditions may cause the malfunction of the panel. [觸控面板必須在穩定的環境狀況下被使用，環境狀態的突然急遽變化有可能會導致觸控面板的機能性失效的發生] 2. In order to guarantee all functions of a touch panel stable, please make sure that system is grounded or a power adapter is connected correctly to ground loop (Connection to earth ground is suggested). [為確保觸控面板的功能得以穩定有效的發揮呈現，請務必確認系統的接地迴路與電源供應器的接地迴路被正確的銜接與執行(與大地作共地的接地迴路是最佳的設計)] 3. Do not pull the interface connector in or out while the touch panel is operating. [觸控面板在操作的過程中，請勿任意插拔觸控面板與系統端的界面連接器] 4. Any sharp edged or hard objects are interdiction to hitting when touch panel operation. [觸控面板在操作的過程中，請務必禁止與避免使用任何尖銳或硬質物體去敲擊碰觸]



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Self Quality test specification

Production Specification

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1 INTRODUCTION [引言]

1.1 Overview[大綱]

This document is intended as a Production quality test specification, which describes the test condition and test methods of production for production.

本文件是投射電容式多點觸控面板(簡稱:TPM)的產品品質保證測試規格書，其中明定測試方法等資訊。

1.2 Document Organization[文件大綱]

- **Chapter 1** – Introduction - Provides an overview of the document. This section of the introduction summarizes the contents of the remaining chapters and appendices.
- **第一章** 引言--為本文件的導讀，摘要各章節內容和附錄等資訊。
- **Chapter 2** –Test items - Describes the all items of test specification of production.
- **第二章** 測試項目—描述所有的品質測試程序。

1.3 Terminology[術語]

- None.[無]

1.4 Target Group/Purpose[用途]

This specification is designed for all test items of all touch panel production.

此規格書是設計用於產品品質保證測試程序說明使用。

1.5 Document References[文件參照]

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2 TEST ITEMS[測試項目]

2.1 Reliability[可靠度]

Item[項目]		Condition [測試條件]	Judge[判定標準]
Panel [面板]	High temperature / High humidity [高溫高溼測試]	60°C / 90%RH, 240 hrs, allow panel stays in normal environment for 12 hrs [60°C /90%RH, 240 小時, 回常溫 12 小時後始可測試]	Reliability test may cause the film puffed yet the electric characteristic stays intact.
	High temperature [高溫測試]	80°C /240 hrs allow panel stays in normal environment for 12 hrs [80°C /240 小時, 回常溫 12 小時後始可測試]	[可靠度測試可能導致外觀不在規範內, 但電性功能性能不受影響] Satisfy of function specification
	Low temperature [低溫測試]	-40°C /240 hrs allow panel stays in normal environment for 12 hrs [-40°C /240 小時, 回常溫 12 小時後始可測試]	[滿足功能規範]
	Thermal Cycle [冷熱循環測試]	-40°C ~80°C [60 min/cycle] *50 cycles allow panel stays in normal environment for 12 hrs [-40°C ~80°C, 每循環 60 分鐘, 共 50 次循環, 回常溫 12 小時後始可測試]	

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2.2 Impact Test[衝擊測試]

Item [項目]	Condition[測試條件]	Judge[判定標準]
Impact Test [衝擊測試]	Aluminium alloy Head R25mm ,9 Point , Speed 10 mm/min , Load 30 Kgf [鋁合金測試頭 R25mm, 9 點, 速度 10 mm/min, 重力 30 Kgf]	NO any crack on TP after test [TP 於測試後不得破裂]

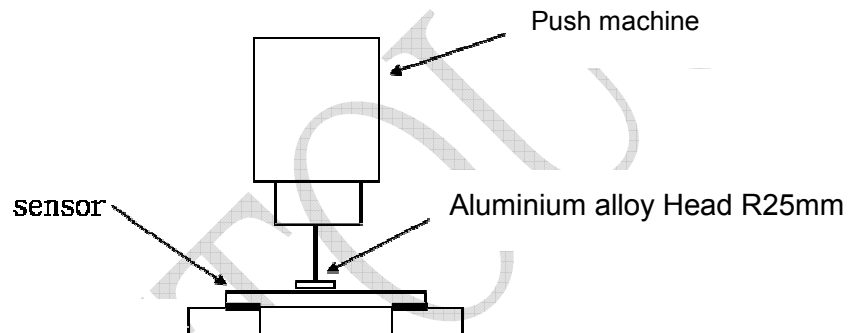


Figure 2.2-1 Impact test method

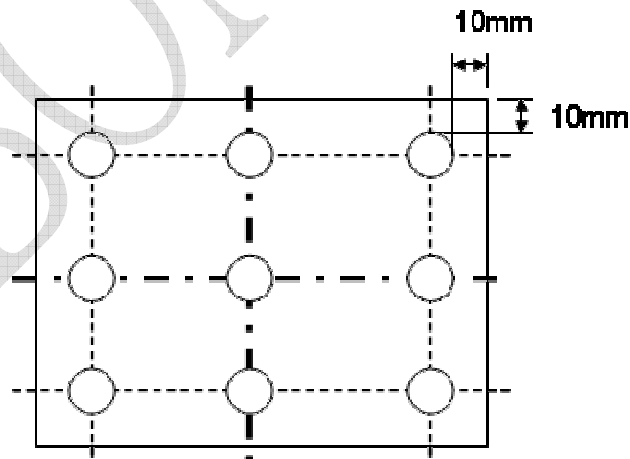


Figure 2.2-2 Impact Point definition

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2.3 Ball Drop Test[落球測試]

Item [項目]	Specification [測試規格]	Judge [判定標準]
Ball Drop Test [落球測試]	Steel ball $\Phi 32$ mm, 130 g , 1 Drop Points , Height 40cm [鋼球 $\Phi 32$ mm, 130 g, 一個落下點, 高度 40cm]	NO any crack on TP after test [TP 於測試後不得破裂]

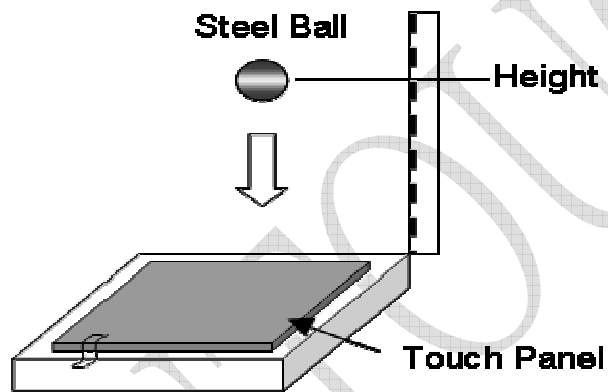


Figure 2.3-1 Ball Drop Test Method

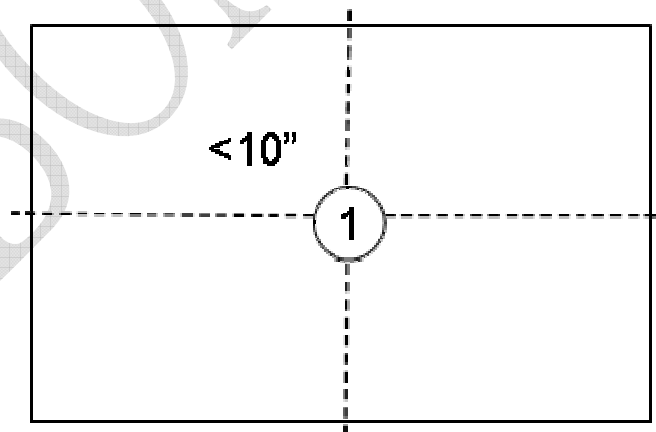


Figure 2.3-2 Drop Point Definition



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Document name

AbonTouch Production Specification
Appearance Inspection Specification
Production Specification

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1 INTRODUCTION[引言]

1.1 Overview[大綱]

This document is intended as a Production appearance inspection specification, which describes the inspection condition and methods for production.

本文件是投射電容式多點觸控面板(簡稱:TPM)的產品外觀檢測規格書，其中明定外觀檢測的條件和檢測方法等資訊。

1.2 Document Organization[文件大綱]

- **Chapter 1** – Introduction - Provides an overview of the document. This section of the introduction summarizes the contents of the remaining chapters and appendices.
- **第一章** 引言--為本文件的導讀，摘要各章節內容和附錄等資訊。
- **Chapter 2** –Appearance inspection - Describes the condition and method of appearance inspection.
- **第二章** 外觀檢測--本產品所有的外觀檢測方法和檢測標準規格資料。

1.3 Terminology[術語]

- None.[無]

1.4 Target Group/Purpose[用途]

This specification is designed for appearance inspection of all touch panel production.

此規格書是設計用於產品的外觀檢測標準。

1.5 Document References [文件參照]

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2 APPEARANCE INSPECTION[外觀檢測規範]

The flaws and minor impurities are accepted outside viewing area(VA) unless their existence affecting electrical functions.

[檢測始用之燈光為一盞 600~1000 Lux 白熾燈光，並於面板後側或上側照射，檢測時須放置在離眼睛 30cm 處(Figure 1.5-2)]

2.1.1 Inspection environment [檢測環境]

The inspection shall be performed by using one 600~1000 LUX fluorescent lamp as back or side light. The panel shall be placed at 30cm away from eyes as shown below.

[只要不影響電器功能性，可視區(VA)外之外觀瑕疵是可以被允許的]

Detail settings are shown in Figure 1.5-1 and Figure 1.5-2.

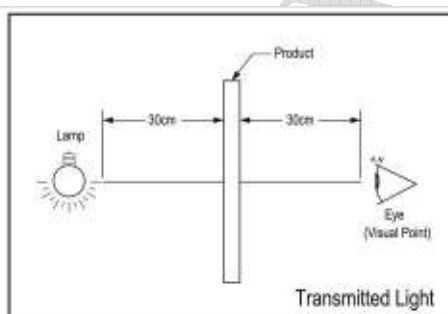


Figure 1.5-1 appearance inspection definition with Transmitted Light

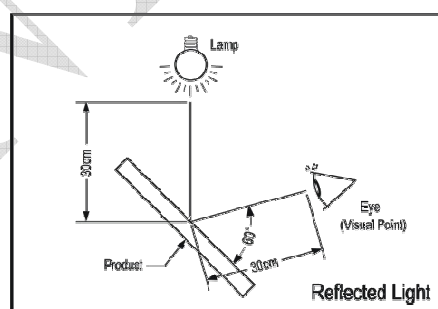


Figure 1.5-2 appearance inspection definition with Reflected Light

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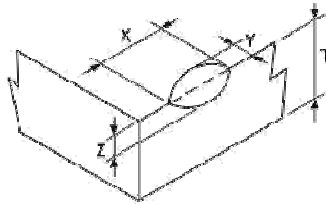
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2.2 Glass Flaw [玻璃瑕疵]

 $X < 3, Y < 2, Z \leq 0.5T$ 

Note: T=Glass thickness [玻璃厚度]

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2.3 Appearance Specification[外觀規格]

Item [項目]	Specification[規格]
Spot/Dots [污點/顆粒異物]	(1) $0.7 < D \leq 0.9\text{mm}$, Max:2 points (2) $0.5 < D \leq 0.7\text{mm}$, Max:4 points (3) $D \leq 0.5\text{mm}$, Ignored (4) $D > 0.9\text{mm}$, NG
Scratch [刮傷]	(1) $0.15 < W \leq 0.2\text{mm}$, $L \leq 8\text{mm}$, Max:2 points (2) $0.1 < W \leq 0.15\text{mm}$, $L \leq 8\text{mm}$, Max:4 points (3) $W \leq 0.1\text{mm}$, Ignored (4) $W > 0.2\text{mm}$, NG
Bubble [氣泡]	(1) $0.7 < D \leq 0.9\text{mm}$, Max:2 points (2) $0.5 < D \leq 0.7\text{mm}$, Max:4 points (3) $D \leq 0.5\text{mm}$, Ignored (4) $D > 0.9\text{mm}$, NG
<Remark> D:Diameter[直徑] W:Width [寬] N:Number of Production [個數] L:Length [長度] Note 1: Particle, Stain or Linear Object that can be clean out easily within 3 times is disregard. 註(一):異物、髒污、條狀物正常擦拭 3 次可去除,即可允收。 Note 2: The defect on back side is ignored except of Nameplate 註(二): 背面可視區以外可忽略。	



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1 INTRODUCTION[引言]

1.1 Overview[大綱]

This document is intended as a Production Packaging information specification, which describes method for packaging and Shipping Number.

本文件是投射電容式多點觸控面板(簡稱:TPM)的產品包裝資訊規格書，其中明定包裝方法等資訊。

1.2 Document Organization[文件大綱]

- **Chapter 1** – Introduction - Provides an overview of the document. This section of the introduction summarizes the contents of the remaining chapters and appendices.
- **第一章** 引言--為本文件的導讀，摘要各章節內容和附錄等資訊。
- **Chapter 2** –Packaging information - Describes method for packaging and Shipping Number.
- **第二章** 包裝資訊—本產品所有的包裝方式和出貨號碼定義。

1.3 Terminology[術語]

- None.[無]

1.4 Target Group/Purpose[用途]

This specification is designed for Package of all touch panel production.

此規格書是設計用於產品的包裝方式定義。

1.5 Document References [參照文件]

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2 PACKAGING INFORMATION [包裝資訊]

2.1.1 Package Method[包裝方式]

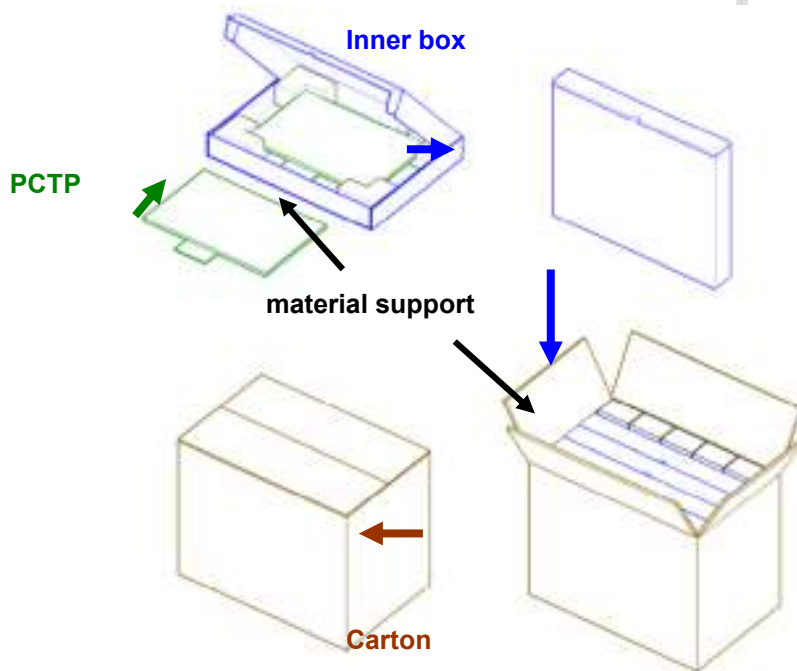


Figure 1.5-1 Package method

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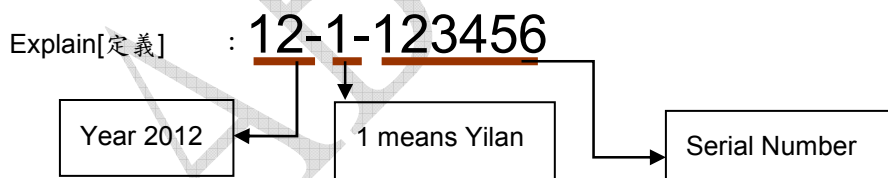
For information

2.1.2 Quantity and Size[數量和面板尺寸對應關係]

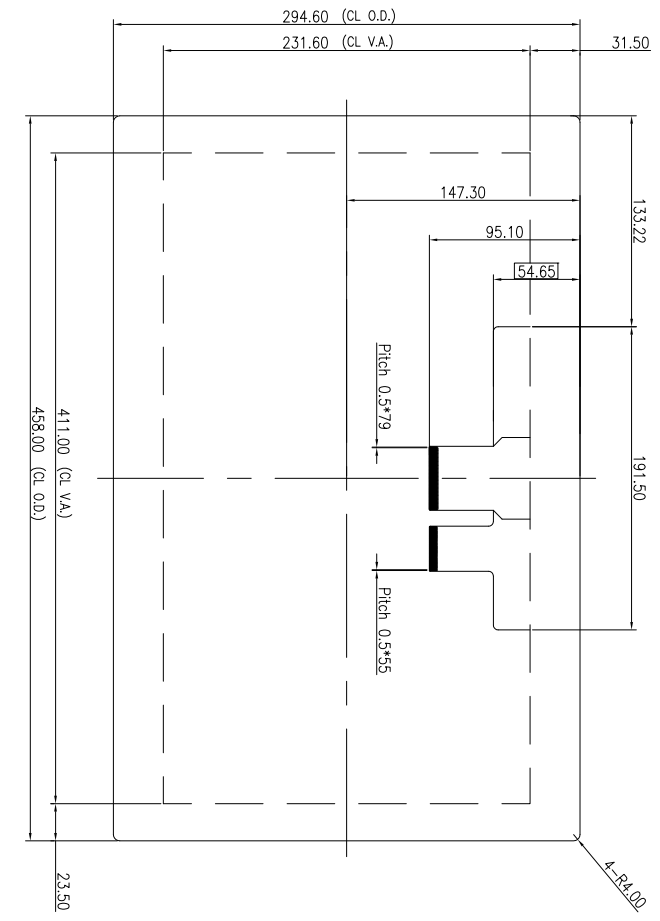
PCTP	Inner box		Carton		
	Size	TP QTY (pcs)	Inner box size (cm)	Inner box QTY (box)	Carton size (cm)
7	10	41*31*7	5	44*42*35	50
9.7	10	45*36*7	5	46*41*42	50
10.1	10	45*36*7	5	46*41*42	50
10.4	5	40*27*7	8	56*35*45	40
13.3	5	41*31*7	5	44*42*35	25
15	5	45*36*7	5	46*41*42	25
15.6	5	45*36*7	5	46*41*42	25
17	5	54*39*7	4	56*35*45	20
18.5	5	54*39*7	4	56*35*45	20
21.5	5	63*41*7	3	63*28*42	15
24	5	63*41*7	3	63*28*42	15

2.1.3 Shipping Number [出貨編號]

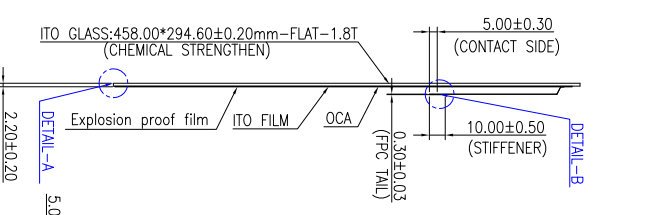
Paste Site [黏貼處] : FPC



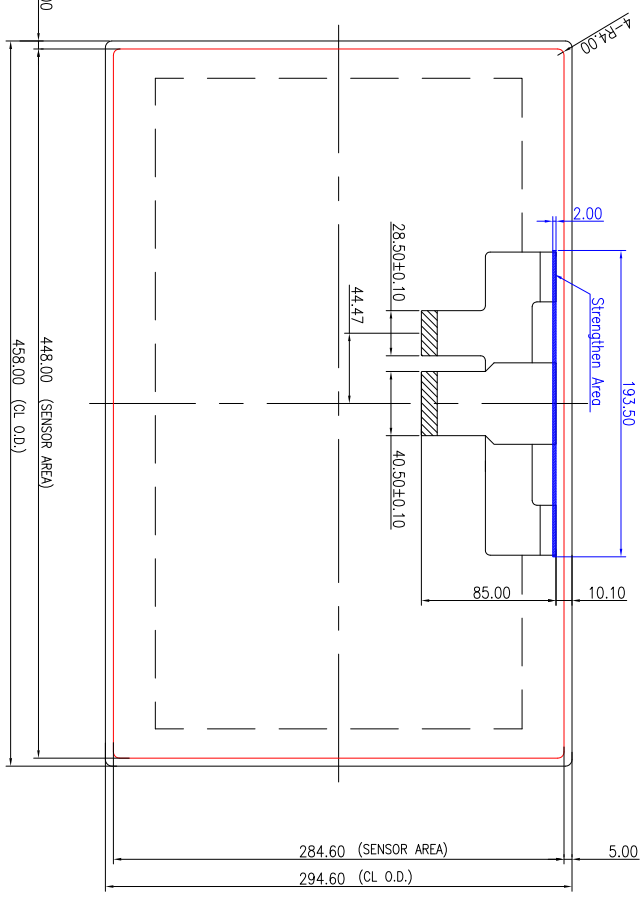
Rev.	Date	Description
A	2012/12/18	First Release



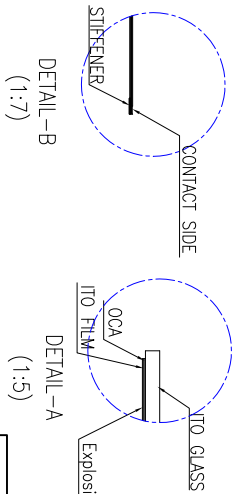
FRONT VIEW



SIDE VIEW



BACK VIEW



CUSTOMER NAME		PROJECTION		TPM PART NO.	
CUSTOMER'S APPROVAL		GENERAL TOLERANCE		58185030000	
		±0.2		TP MODEL/COB	
DRWN	<i>Alexandra</i>	DATE	2012.12.18	AB-5818503022118210850/4001850330	
CHK	<i>Shawna</i>	DATE	2012.12.18	UNIT:	mm
APVD	<i>Ng Johnny</i>	DATE	2012.12.18	SHEET	1/1
			REV.	A	



Production Specification

MC162A07 Function Specification

Parts: Controller Board MC162A07

Type: Production Function Specification

Status: Issue

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1.1	2012.12.11	Modify Supported Operation system and interfaces	A	Visor
1.2	2012.12.19	Modify item 6 of Table 2.3-1 Electrical Characteristics List	B	Visor



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MC162A07 Function Specification
Abontouch Production Specification

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1 INTRODUCTION .

Overview

This document is described as a MC162A07 functions and support Operation System document, which what kind interface it supports in difference Operation System.

Document Organization

- **Chapter 1** – Introduction - Provides an overview of the document. This section of the introduction summarizes the contents of the remaining chapters and appendices.
- **Chapter 2** –Specification - Describes the MC162A07 specification.

Terminology

- I2C :
An interface between touch panel model and customer hardware device.
- RS232:
An interface between touch panel model and customer hardware device.
- USB:
An interface between touch panel model and customer hardware device.

Target Group/Purpose

This document is described electronic specification of MC162A07.

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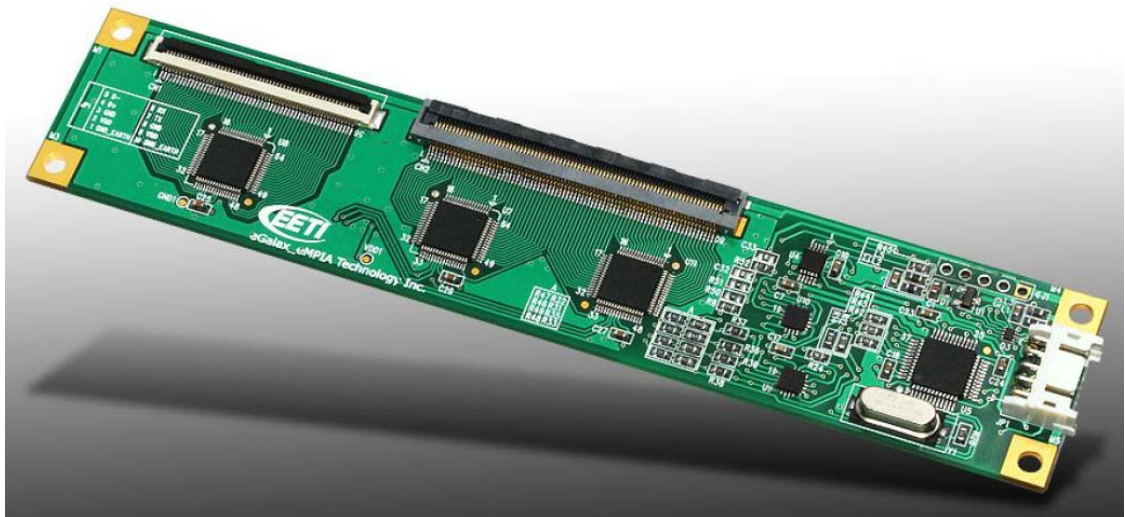
2 SPECIFICATION

2.1 Overview

MC162A07 touch control board to meet latest Restriction of Hazardous Substances (RoHS) Directive. This touch panel controller provides the optimistic performance of your projected capacitive touch panels. It communicates with PC system directly through USB/UART/I2C connector.

You can see how superior the design is in sensitivity · accuracy and friendly operation. The touch panel driver emulates mouse left and right button function and supports operation systems as following.

Controller:



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2.2 Supported Operation systems and interfaces

OS	Version	Interface
Windows	Windows 8(Need logo submission)	USB / RS232
	Windows 7	
	Windows Vista,XP/2000	
	Windows CE.Net 4.x/5.0/6.0/7.0	
	Windows Embedded XP	
	Windows XP Tablet PC edition	
Linux	Kernel 2.6.24 later	USB / RS232/I2C
	X11=Xorg(1.7.6) later	
	Distribution: Mandrake, Fedora, Red Hat, SuSE, Ubuntu, Debian, Meego, Puppy Linux...	
	Android 3.0 – Google	USB / RS232 / I2C
Mac	Mac OS 10.5.x later (Intel CPU)	USB

Table 2.2-1 Supported Operation system and interfaces list

2.3 Electrical Characteristics

Item		Specifications
1	Power Supply	3.5 V~5.5V, Typical 5V
2	Channels of Panel	Max. X:78 Y:48 channels
3	Power consumption	Active Mode: Max 50 mA Idle Mode: 5 mA Sleep Mode: 0.5 mA
4	Report rate(points/sec) <i>(*Note :Report rate will vary by channel number, cover thickness and other parameters)</i>	Single touch: Typ. 200 Hz Dual touch: Typ. 120 Hz 4 Point touch: Typ. 60Hz
5	Response time	Max. 20 ms
6	Linearity <i>(*Note : 1.Final turning firmware with all in one production will get better linearity feature)</i>	Line drawing accuracy : 1pt +/- 3mm offset /10mm Line drawing accuracy : 2pt +/- 4mm offset /10mm Touch (point) accuracy : 1pt +/- 4.5mm Touch (point) accuracy : 2pt +/- 5.0mm
7	Interface	USB: 1.1 Full Speed RS232: No parity,8 data bits,1 stop bit, baud rate 57600bps I2C:100K/400K Hz
8	Resolution	2048*2048 resolution

Table 2.3-1 Electrical Characteristics List

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2.4 Environmental Characteristics

No.	Item	Specifications
1	Operating Temperature	-40 to 85 °C
2	Storage Temperature	-40 to 90 °C
3	Relative Humidity	95% at 60 °C, RH Non-condensing

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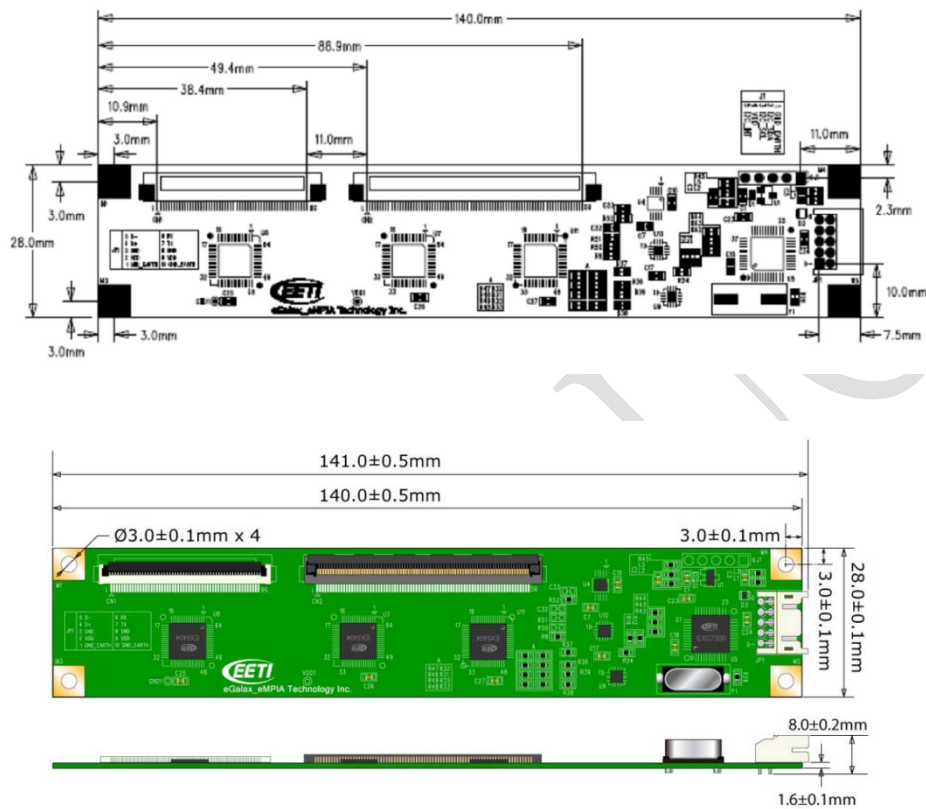
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2.5 Dimension



2.5.1 Thickness:

Total thickness: $8.0\text{mm} \pm 0.2\text{mm}$

(Including PCB: 1.6mm.USB/RS232 connector:5.1mm. Soldering pin:1.3 mm)

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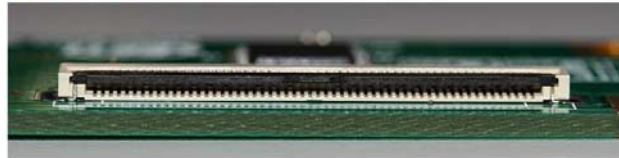
For information

2.6 Pin Assignment

2.6.1 FPC Connector

2.6.1.1 CN1

CN1 Connector



20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	PIN
Y14	Y13	Y12	Y11	Y10	Y9	Y8	Y7	Y6	Y5	Y4	Y3	Y2	Y1	Y0	Extra_Y2	Extra_Y1	Shield_Y1	NC	NC	Name
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	PIN
Y34	Y33	Y32	Y31	Y30	Y29	Y28	Y27	Y26	Y25	Y24	Y23	Y222	Y21	Y20	Y19	Y18	Y17	Y16	Y15	Name
				56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	PIN
				Shield_Y2	Y49	Y48	Y47	Y46	Y45	Y44	Y43	Y42	Y41	Y40	Y39	Y38	Y37	Y36	Y35	Name

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2.6.1.2 CN2

CN2 Connector



20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01	PIN	Name
X18	X17	X16	X15	X14	X13	X12	X11	X10	X9	X8	X7	X6	X5	X4	X3	X2	X1	X0	Shield_X1		
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	PIN	Name
X38	X37	X36	X35	X34	X33	X32	X31	X30	X29	X28	X27	X26	X25	X24	X23	X22	X21	X20	X19		
60	59	58	57	56	55	54	53	52	51	50	49	48	47	46	45	44	43	42	41	PIN	Name
X58	X57	X56	X55	X54	X53	X52	X51	X50	X49	X48	X47	X46	X45	X44	X43	X42	X41	X40	X39		
80	79	78	77	76	75	74	73	72	71	60	69	68	67	66	65	64	63	62	61	PIN	Name
Shield_X2	Extra_16	Extra_15	Extra_14	Extra_13	Extra_12	Extra_11	Extra_10	Extra_9	Extra_8	Extra_7	Extra_6	Extra_5	Extra_4	Extra_3	Extra_2	Extra_1	X61	X60	X59		

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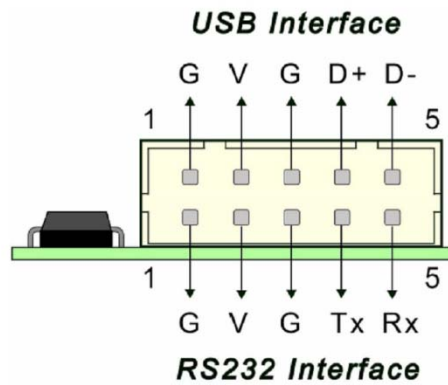
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2.6.2 USB/RS232 Combo connector

USB/RS232 Combo Connector Pin Assignment:



USB&RS232 interface:



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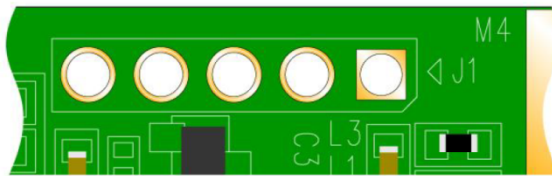
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2.6.3 I2C

I2C interface:

1	GND_EARTH
2	I2C_SDA
3	I2C_SCL
4	VDD
5	I2C_INT



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2.7 Product Package

Items	PartNO	Standard	Memo
Controller Board	MC162A07	Required	
Y-Cable	MC252A06	Required	
USB cable	MC252A03	Option	If you use USB interface
RS232 cable	MC252A04	Option	If you use RS232 interface